Listing of the claims:

1. (Previously presented) An apparatus for detecting a position of an object in one or more images captured by an image pickup device mounted on a vehicle, comprising:

(a) a memory configured to store a plurality of images captured by the image pickup device, wherein the image pickup device is a single camera, including a first image of an object taken at a first time by the single camera and a second image of the object captured at a second time by the single camera; and

(b) a controller operatively coupled to the memory and configured to determine from the first image taken at the first time the position of the object and a first pitch angle of the vehicle relative to a y-coordinate in a horizontal direction is zero, and to determine from the second image whether a second pitch angle of the vehicle relative to the y-coordinate in the horizontal direction at the second time is zero, and to determine the position of the object in the second image based on the position of the object in the first image if the second pitch angle is not zero.

2. (Previously presented) The apparatus of claim 1, wherein the controller is further configured to compute an image acceleration of the second image; and to determine that the second image was captured when the second pitch angle of the vehicle was zero if the image acceleration of the second image is zero.

3. (Previously presented) The apparatus of claim 2, wherein the controller is further configured to compute a vertical image velocity of the second image, and to determine that the second image was captured when the second pitch angle of the vehicle was zero if the second image has a zero image acceleration and a non-zero vertical image velocity.

4. (Previously presented) The apparatus of claim 1, wherein the memory includes a third image of the object captured at a third time when a third pitch angle of the vehicle is zero, and wherein the controller is further configured to determine the position of the object in the second image based on the position of the object in the first image and the position of the object in the third image.

5. (Previously presented) The apparatus of claim 1, wherein the controller is further configured to compute a size of the object in the second image based on a size of the object in the first image if the second image was captured when the second pitch angle of the vehicle was not zero, and to compute a distance between the image pickup device and the object in the second image based on the computed sizes of the object in the first and second images.

6. (Previously presented) The apparatus of claim 5, wherein the controller is further configured to compute a vision axis of the image pickup device based on the computed distance if the second image was captured when the second pitch angle of the vehicle was not zero, and to compute the position of the object in the second image based on the computed vision axis.

7. (Currently amended) A vehicle, comprising:

(a) an image pickup device mounted on the vehicle to capture a plurality of images of at least one object;

(b) a memory on which is stored the plurality of images captured by the image pickup device, wherein the image pickup device is a single camera, including a first image of the at least one object taken by the single camera at a first time when a first pitch angle of the vehicle relative to a y-coordinate in a horizontal direction is zero and an image acceleration is zero and a second image of the at least one object captured by the single camera at a second time; and

(c) a controller operatively coupled to the memory and configured to determine a position of the at least one object in the first image and to determine from the first image whether a second pitch angle of the vehicle in the second image at the second time is zero, and to determine a position of the at least one object in the second image based on the position of the at least one object in the first image if the second pitch angle is not zero.

8. (Previously presented) The vehicle of claim 7, wherein the controller is further configured to compute an image acceleration of the second image; and to determine that the second image was captured when the second pitch angle of the vehicle was zero if the image acceleration of the second image is zero.

9. (Previously presented) The vehicle of claim 8, wherein the controller is further configured to compute a vertical image velocity of the second image, and to determine that the second image was captured when the second pitch angle of the vehicle was zero if the second image has a zero image acceleration and a non-zero vertical image velocity.

10. (Previously presented) The vehicle of claim 7, wherein the memory includes a third image of the at least one object captured at a third time when a third pitch angle of the vehicle is zero, and wherein the controller is further configured to determine the position of the at least one object in the second image based on the position of the at least one object in the first image and the position of the at least one object in the third image.

11. (Previously presented) The vehicle of claim 7, wherein the controller is further configured to compute a size of the at least one object in the second image based on a size of the at least one object in the first image if the second image was captured when the second pitch angle of the vehicle is not zero, and to compute a distance between the single camera and the at least one object in the second image based on the computed sizes of the at least one object in the first and second images.

12. (Previously presented) The vehicle of claim 11, wherein the controller is further configured to compute a vision axis of the single camera based on the computed distance if the second image was captured when the second pitch angle of the vehicle was not zero, and to compute the position of the at least one object in the second image based on the computed vision axis.

13. (Previously presented) An apparatus for detecting a position of an object in one or more images captured by a single camera in a vehicle, comprising:

image judgment means for determining whether an image of the object captured by the single camera was captured when a pitch angle of the vehicle relative to a y-coordinate in a horizontal direction was zero and an image acceleration was zero; and

object position computing means for determining a position of the object in a first image captured by the single camera if the first image was captured when the first pitch

angle of the vehicle was not zero, which determination is based on a position in a second image of the same object that was captured by the single camera when a pitch angle of the vehicle was zero and an image acceleration of the second image was zero.

14. (Previously presented) A method for detecting a position of an object in an image captured by an image pickup device in a vehicle, comprising:

storing a plurality of images captured by the image pickup device, wherein the image pickup device is a single camera;

determining a pitch angle of the vehicle in each of the plurality of images, an image captured by the single camera and having a first pitch angle of zero being a first image;

determining a position of the object in the first image;

determining whether a second image of the object captured by the single camera was captured when a second pitch angle of the vehicle relative to a y-coordinate in a horizontal direction was zero; and

determining the position of the object in the second image if the second image was captured when the second pitch angle of the vehicle was not zero, which determination is based on the first image of the same object that was captured when the pitch angle of the vehicle was zero.

15. (Previously presented) The method of claim 14, wherein determining a pitch angle comprises determining an image acceleration of the image; wherein the pitch angle of the vehicle is determined to be zero if the image acceleration is zero.

16. (Previously presented) The method of claim 15, further comprising determining a vertical image velocity of each of the plurality of images; wherein the pitch angle of the vehicle is determined to be zero if an image has a zero image acceleration and a non-zero vertical image velocity.

17. (Previously presented) The method of claim 14, further comprising providing a third image of the object captured when a third pitch angle of the vehicle was zero, and wherein the position of the object in the second image is determined based on the positions of the object in the first image and in the third image.

18. (Previously presented) The method of claim 14, further comprising computing a size of the object in the first image and computing a size of the object in the second image based on the size of the object in the first image if the second image was captured when the second pitch angle of the vehicle was not zero, and computing the distance between the single image pickup device and the object based on the computed sizes of the object in the first and second images.

19. (Previously presented) The method of claim 18, further comprising computing a vision axis of the single image pickup device based on the computed distance of the object, if the second image was captured when the second pitch angle of the vehicle was not zero, and computing the position of the object in the second image based on the computed vision axis.